

Route Optimization of Airships

by Niklas Heidenreich



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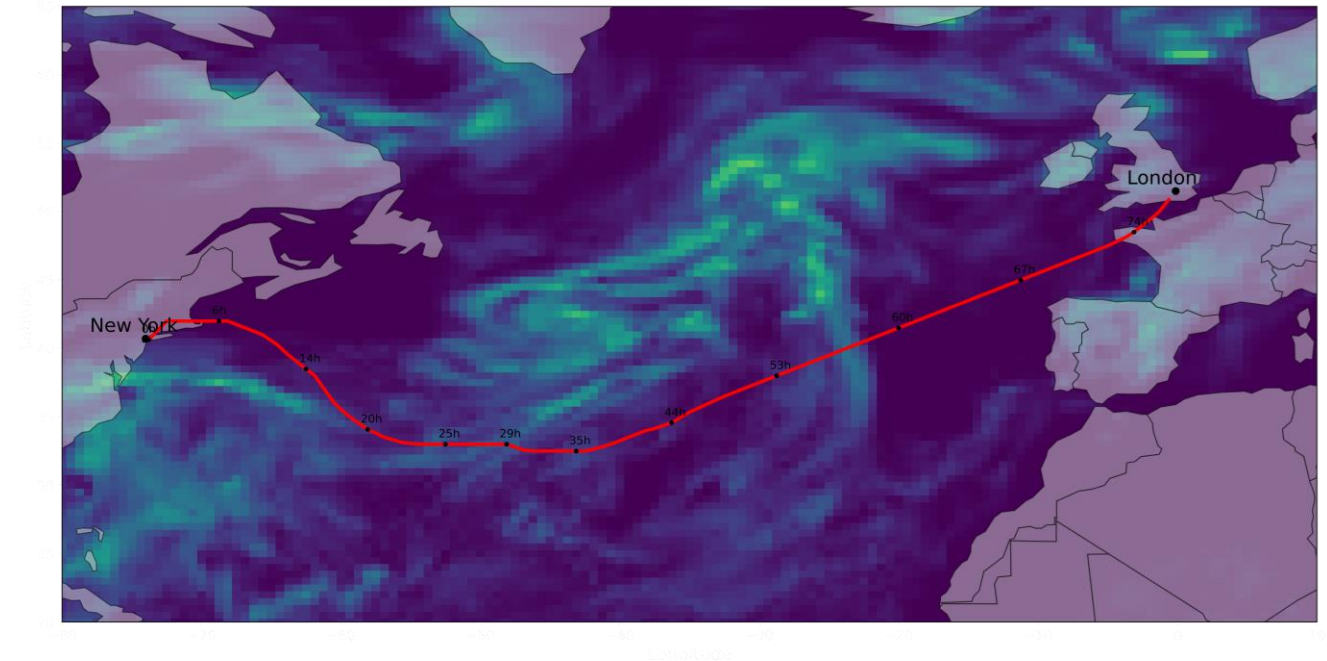


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We develop a software that can simulate airship travel using solar power.

Deciding when to charge and to discharge the battery is the core problem.

Flightpath from New York to London during winter

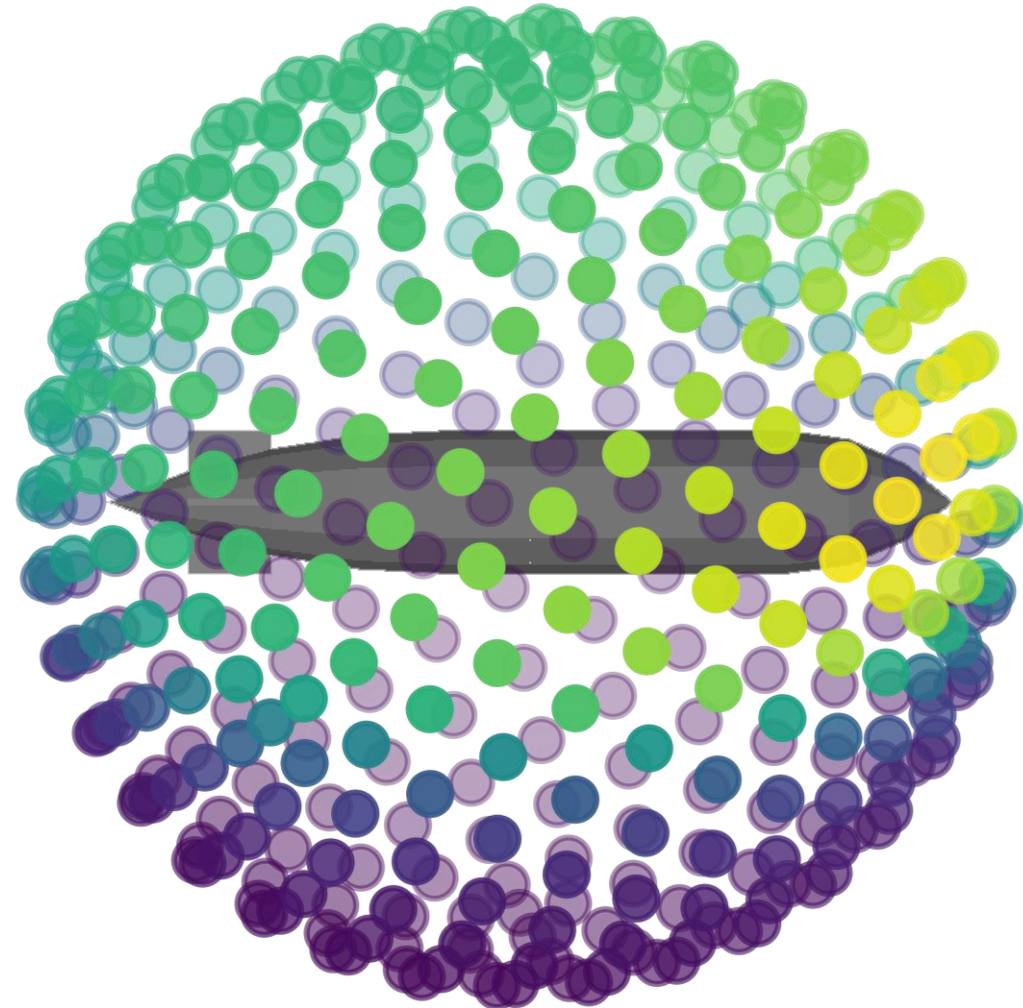


The amount of solar energy produced is important.

As such we make use of multiple datasets:

- Clouds
- Wind
- Surface altitude

The radiation simulation shows us how much radiance we can expect from every direction.



Best solar panel placement

Consideration

**The effect of clouds,
or the ground albedo
allows sunlight to come
from any direction.**

This makes solar panel positioning
nontrivial.

Snow reflects ~100% of sunlight

➤ Solar panels on the underside?

